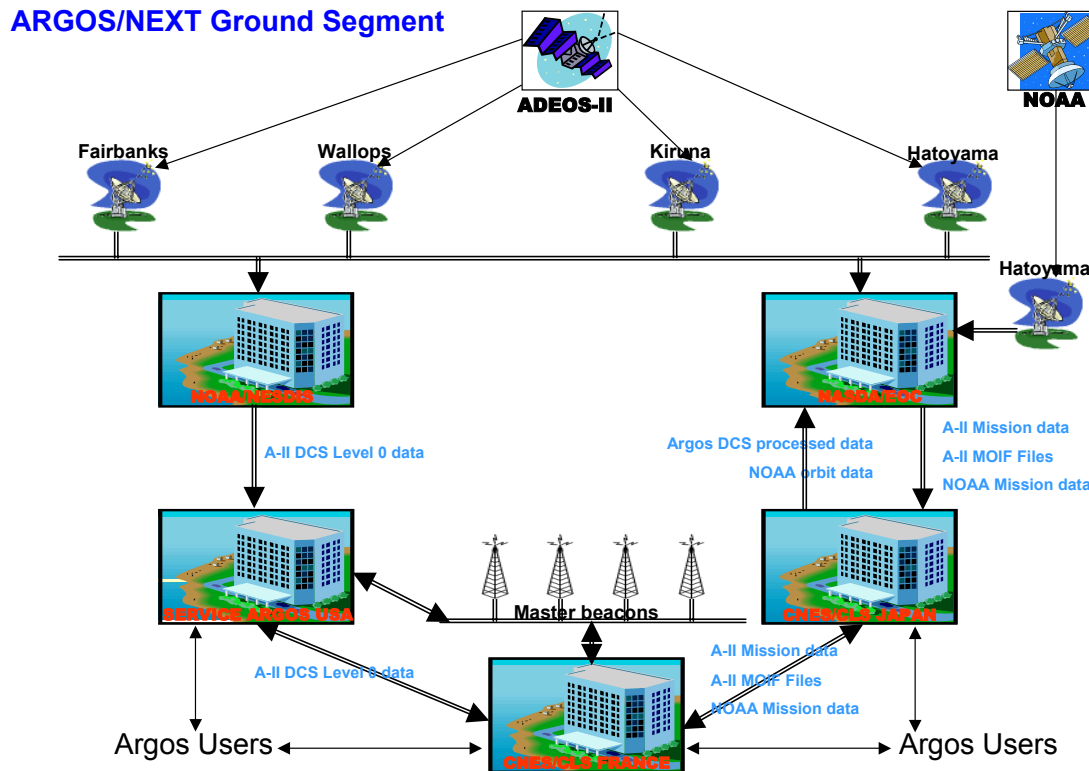


Agenda item F-2.2

38 th Argos Operations Committee meeting
Prepared by CLS
Date : May, 10th 2004

ARGOS NEXT Ground Segment

1. Downlink Messages Management Center



ADEOS-II satellite was successfully launched by NASDA on Dec. 14, 2002 but failed on October 25th, 2003. ADEOS-II was the first satellite that carried on an ARGOS two-way instrument (named ARGOS-NEXT) allowing users to send messages to their platforms equipped of an Argos receiver (called PMT- Platform Messaging Transceiver).

From January to October 2003, CLS proceeded to the validation of the Argos downlink messaging functionalities. First, the ARGOS instrument on board ADEOS-II was fully tested (HK verification, Downlink functioning and performance check out, On board software validation).

A series of very interesting and conclusive tests has been performed with NASDA and their Argos platforms equipped of a receiver. These tests, which were done in "end-users" conditions, have shown and proved the good functioning of the Argos downlink functions.

Today, CLS uses its Argos/Next experience to develop the downlink messaging

functions on the future ARGOS3.

2. User PMT (Platform Message Tranceiver)

Year 2003 was dedicated to the development of the PMT developed in collaboration with Bathy Systems (US) Martec (FR), AntennaSys (US), Seimac (CAN) and Persistor (USA). Thanks to the satellite simulator located at CLS we were able to validate the product and be ready for testing with ADEOS II.

On September 25th 2003 SAI, together with CLS, attempted to OCEANS 2003 in San Diego CA, a major conference for Oceanology. Using the PMT developed together with Bathy Systems as a basic whip antenna on top of a simple stick we presented the various functionalities of the two-way communication service using ADEOS II:

- Possibility to transmit on pass prediction only due to the continuous reception of orbital parameters from the downlink,
- Possibility to push more data towards the satellite using the satellite acknowledgement,
- Possibility to receive user data or predefined data from the satellite.

This tutorial included the first live demonstration to the public of a complete interactive session as the reception of downlink messages. Up to 18 messages of 256 bits (larger than the current size of a complete float profile) were transmitted and acknowledged by the satellite within less than 10 minutes which usually takes up to 10 hours for the same volume of data at the equator. The users, as some manufacturers, present in the audience were pleased to be there for this historic event.

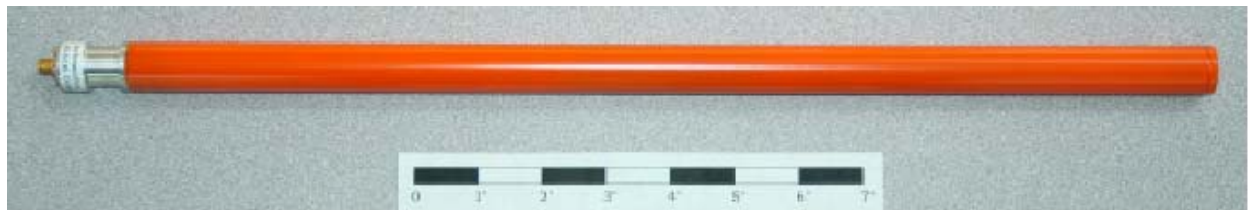
Some other tests done a week after in Boston (MAS) allowed us to push 32 messages using the same interactive protocol: a huge step for Argos!

Beside this conference we approached various potential users who positively answered by requesting some PMT units to implement in there platforms. Late September 2003 we had a list of 40 various applications covering the following field: drifters, floats, balloons, Applications for Universities, Security,...

One month after the conference, on October 25th 2003, NASDA announced the lost of communication with the satellite. Since then, and due to the potentiality of the downlink, we have designed several products using the Martec receiver as an option to be able to receive downlink messages when METOP will fly. Beside these product we also analyze the possibility to get an industrial solution for PMTs with a low target cost.



Flat bi-frequency antenna



Whip bi-frequency antenna